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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,393	12/19/2005	Richard Lewis Riggs	SE/2-22908/MA 2235/PCT	1648

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EXAMINER	
YOUNG, SHAWQUIA	

ART UNIT	PAPER NUMBER
1626	

MAIL DATE	DELIVERY MODE
09/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,393	RIGGS ET AL.	
	Examiner	Art Unit	
	Shawquia Young	1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,13 and 14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,13 and 14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/13/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-10, 13 and 14 are currently pending in the instant application. Applicants have cancelled claims 11 and 12 in an amendment filed on July 19, 2007.

I. *Priority*

The instant application is a 371 of PCT/EP04/51259, filed on June 28, 2004 and claims benefit of Foreign Application EPO 03405507.9, filed on July 7, 2003.

II. *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on February 13, 2006 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

III. *Restriction/Election*

A. Election: Applicant's Response

Applicants' election with traverse of the proposed Group, claims 1-10, 13 and 14 (in-part), drawn to a process of preparing a compound of formula (I) wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl in the reply filed on July 19, 2007 is acknowledged. The traversal is on the ground(s) that: (1) the contribution to the art is a novel process whereby the conversion of compound II to compound I is enabled by the use of microwave radiation upon cancellation of the product claims and (2) the reference cited, US 5,808,094 is not relevant to the instant invention.

All of the Applicants' arguments have been considered but have not been found

persuasive. It is pointed out that the restriction requirement is made under 35 U.S.C. 121. 35 U.S.C. 121 gives the Commissioner (Director) the authority to restrict applications to several claimed inventions when those inventions are found to be independent and distinct. The Examiner has indicated that more than one independent and distinct invention is claimed in this application and has restricted the claimed subject matter accordingly.

Applicants argue that the contribution to the art is a novel process whereby the conversion of compound II to compound I is enabled by the use of microwave radiation. However, the Examiner wants to point out that the special technical feature of the instant claims relates to the common link of all of the claims, which is a compound of the formula I and not the process. The special technical feature is the formula I without the variables since the variables can change and does not remain constant. As mentioned in the previous Office action, the special technical feature does not define a contribution over the art and therefore Lack of Unity is present and the restriction is proper. Thus the reference used by the Examiner was relevant for the purpose of showing Applicants that their special technical feature does not provide a contribution over the prior art. The reference is not being used in an art rejection so it does not have to teach the limitations of Applicants' instant invention.

The Restriction Requirement detailed the reasons for restriction between the groups. Different search considerations are involved (i.e., class/subclass searches, databases searches, etc.) for each of the groups listed. The inventions are classified into various subclasses of classes 514, 544, 546 and 548. However, each Class 514,

544, 546 and 548 encompasses numerous patents and published applications. For instance, Class 514 contained 165,171 patents and published applications. Therefore it would constitute a burden on the Examiner and the Patent Office's resources to examine the instant application in its entirety.

Subject matter not encompassed by the proposed Group, claims 1-10, 13 and 14 (in-part), drawn to a process of preparing a compound of formula (I) wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl are withdrawn from further consideration pursuant to 37 CFR 1.142 (b), as being drawn to nonelected inventions.

IV. Rejections

Double Patenting

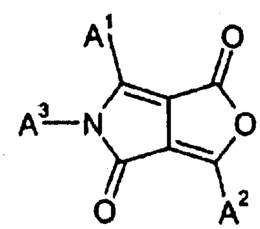
The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

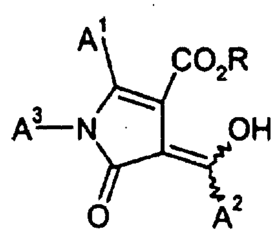
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

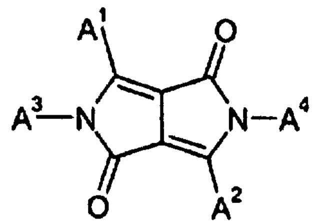
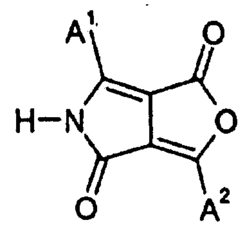
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with

37 CFR 3.73(b).

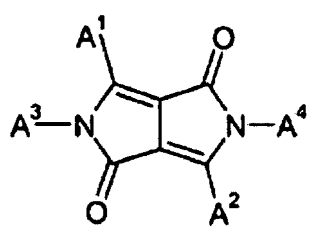
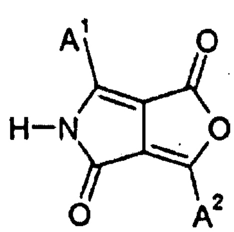
Claims 1-7, 13 and 14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 3 of copending US application 10/485,840. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

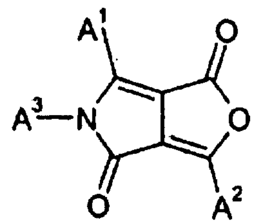
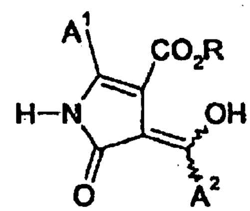
Applicants' elected subject matter in claim 1 is a process for the preparation of furopyrroles of the general formula I , wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl comprising

(a) heating a compound of the formula II  under microwave irradiation optionally in the presence of an inert solvent, wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl; R is as defined in claim 1. Claim 2 of the instant application claims the process of claim 1, comprising in addition reacting a compound of formula I with a primary amine of the

formula A^4-NH_2 (IV), wherein a DPP of formula III,  is obtained, wherein A^4 is as defined in claim 2 excluding heteroaryl. Claim 3 of the instant application claims the process according to claim 1, wherein the compound of the formula I, is obtained by reacting a compound of the formula Ia  with a compound of the formula (V) A^3-X, wherein X is a leaving group.

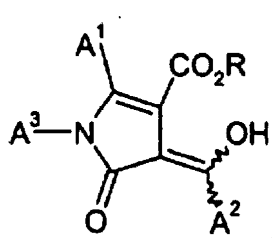
Determining the Scope and Content of the Copending Application

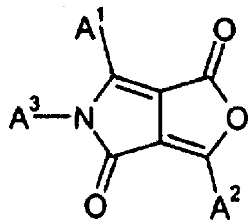
Claim 1 of the copending application claims a process for the preparation compound of the formula (I),  comprising the steps of: reacting a compound of the formula (IV)  with a compound of A^3-X(V),

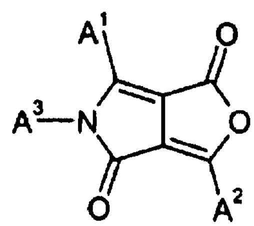
wherein A^1 and A^2 are C_{1-18} alkyl, C_{2-18} alkenyl, C_{2-18} alkynyl, C_{5-8} cycloalkyl, C_{5-8} cycloalkenyl, aryl or heteroaryl; A^3 is as defined in claim 1; where X is a leaving group to give a compound of the formula (II)  and reacting the compound of formula II with a primary amine of the formula A^4-NH_2 (III). Claim 3 of the copending application claims the process of claim 1, wherein the compound of the formula (IV) is obtained by heating a compound of the formula (VI)  in an inert solvent.

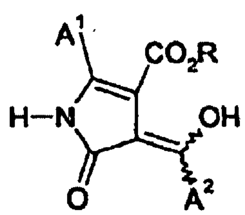
Ascertaining the Differences Between the Instant Application and the Copending Application

The process claimed in the instant application heats a compound of formula

 under microwave irradiation to obtain a compound of the formula

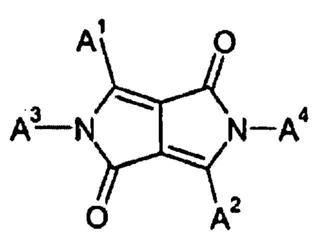
 . The process claimed in the copending application obtain a

compound of the formula  by heating a compound of formula

 .

Finding Prima Facie Obviousness

As mentioned above, the only difference between the instant claims and the claims of 10/485, 840 is that the process of preparing furopyrroles of formula

 is obtained by heating compounds of formula (II) in the instant application and formula (VI) in the copending application in an inert solvent. The heating is done by microwave irradiation in the instant application whereas the copending application uses heating without specifying the type of heating. Thus,

heating by microwave irradiation is considered a species which is encompassed by the genus of heating. Therefore, one of ordinary skill in the art would have been motivated to prepare furopyrroles by utilizing heating by microwave irradiation at the time of filing this application and expect this method to be advantageous and more efficient. Claiming a known process with a slight change in heating mechanism is obvious absent a showing of unexpected results and/or properties. As a result, the claims are rejected under obviousness-type double patenting.

35 USC § 103 - OBVIOUSNESS REJECTION

The following is a quotation of 35 U.S.C. § 103(a) that forms the basis for all obviousness rejections set forth in this Office action:

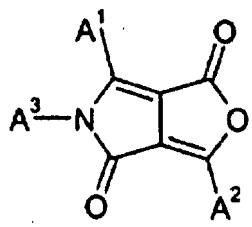
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Graham v. John Deere Co. set forth the factual inquiries necessary to determine obviousness under 35 U.S.C. §103(a). *See Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Specifically, the analysis must employ the following factual inquiries:

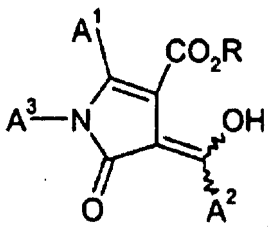
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10, 13 and 14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Morton, et al.* (WO 03/022848). Applicants' elected subject matter in

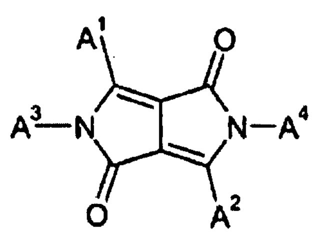
claim 1 is a process for the preparation of furopyrroles of the general formula I



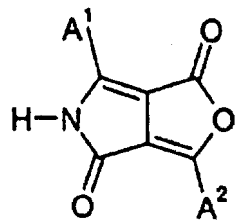
, wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl comprising (a) heating a compound of the formula II



under microwave irradiation optionally in the presence of an inert solvent, wherein A^1 and A^2 are each a carbocyclic aryl group and A^3 is as defined in claim 1 excluding heteroaryl; R is as defined in claim 1. Claim 2 of the instant application claims the process of claim 1, comprising in addition reacting a compound of formula I with a primary amine of the formula A^4-NH_2 (IV), wherein a DPP of formula III

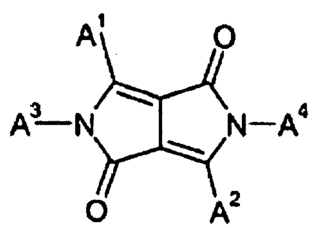


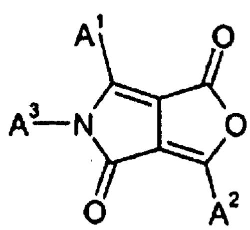
is obtained, wherein A^4 is as defined in claim 2 excluding heteroaryl. Claim 3 of the instant application claims the process according to claim 1, wherein the compound of the formula I, is obtained by reacting a compound of the

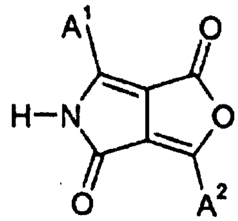
formula Ia  with a compound of the formula (V) A^3-X, wherein X is a leaving group.

The Scope and Content of the Prior Art (MPEP §2141.01)

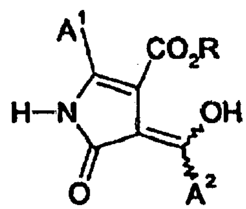
Morton, et al. teaches a process for the preparation of a compound of the formula

(I)  comprising reacting a compound of the formula (II)

 with a primary amine of the formula A^4-NH_2 (III), wherein A^1 and A^2 are C_{1-18} alkyl, C_{2-18} alkenyl, C_{2-18} alkynyl, C_{5-8} cycloalkyl, C_{5-8} cycloalkenyl, aryl or heteroaryl; A^3 is as defined in the disclosure. The reference further teaches the starting compound of the formula II is obtained by reacting a compound of the formula (IV)



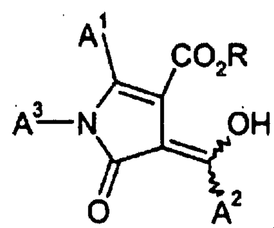
with a compound of the formula (V) A^3-X, wherein X is a leaving group. The reference also teaches that the compound of the formula (IV) is obtained by heating a compound of the formula (VI)



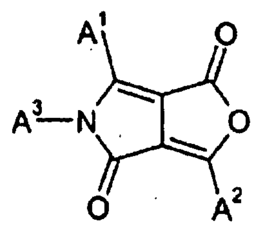
in an inert solvent.

The Difference Between the Prior Art and the Claims (MPEP §2141.02)

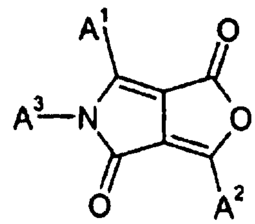
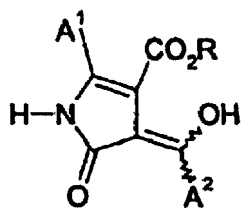
The difference between the prior art of *Morton, et al.* and the instant invention is that the applicants are claiming a process for preparing furopyrroles that comprises heating a compound of formula



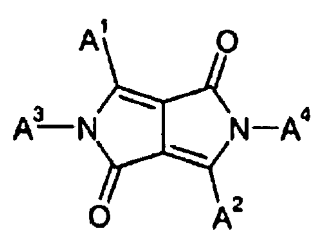
under microwave irradiation to obtain a compound of the formula



. The process claimed in the

reference obtains a compound of the formula  by heating a compound of formula  .

Prima Facie Obviousness-The Rational and Motivation (MPEP §2142-2413)

In _In re Aller_, 220 F. 2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955), it was well established that merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. As mentioned above, the only difference between the instant claims and the reference is that the process of preparing furopyrroles of formula  is obtained by heating compounds of formula (II) in the instant application and formula (VI) in the *Morton, et al.* reference in an inert solvent. The heating is done by microwave irradiation in the instant application whereas the reference uses heating without specifying the type of heating. Thus, heating by microwave irradiation is considered a

species which is encompassed by the genus of heating. According to the *Richter, et al.* reference, microwave-enhanced chemistry is a fast, efficient and reproducible sample-preparation method. Therefore, one of ordinary skill in the art would have been motivated to prepare furopyrroles by utilizing heating by microwave irradiation at the time of filing this application and expect this method to be advantageous and more efficient. Claiming a known process with a slight change in heating mechanism is obvious absent a showing of unexpected results and/or properties.

V. Objections

Claim Objection-Non Elected Subject Matter

Claims 1-10, 13 and 14 are objected to as containing non-elected subject matter. To overcome this objection, Applicant should submit an amendment deleting the non-elected subject matter.

VI. Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawquia Young whose telephone number is 571-272-9043. The examiner can normally be reached on 6:30 AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on 571-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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